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Review and assessment of the asbestos problem at the United Nations and management of asbestos-containing materials at overseas buildings at Geneva, Vienna, Nairobi and at the locations of the regional commissions

Report of the Secretary-General

Summary

In accordance with General Assembly resolution 54/249, the Secretary-General submitted a report on the review assessment and management of the asbestos problem at United Nations Headquarters (A/54/779), including specific proposals in the proposed programme budget for the biennium 2000-2001 aimed at addressing the situation. That report was reviewed by the Advisory Committee on Administrative and Budgetary Questions, which recommended that the General Assembly take note of the information concerning Headquarters and that similar information be provided for overseas properties (see A/54/7/Add.12, para. 8). In a draft decision (see A/54/691/Add.1) approved on 7 April 2000, the Fifth Committee endorsed the recommendation.

The Secretary-General is pleased to submit the present report, which provides an assessment of the existing conditions with regard to asbestos-containing materials at United Nations buildings located in Geneva, Vienna, Nairobi and at regional commission buildings in Addis Ababa, Bangkok, Beirut and Santiago. The report includes a review of measures and procedures being followed to avoid any harmful effects of such materials on the health of staff members, delegates and other persons working in and visiting the buildings.

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Contents

		Paragraphs	Page
I.	Introduction	1–5	4
II.	United Nations Office at Geneva	6–18	4
	A. Presence of asbestos	6–9	4
	B. Compliance with industry codes, regulations and standards	10–12	4
	C. Current measures	13–16	5
	D. Resources required for the management of asbestos	17	5
	E. Conclusion	18	5
III.	United Nations Office at Vienna	19–27	6
	A. Presence of asbestos	19	6
	B. Compliance with industry codes, regulations and standards	20–22	6
	C. Current measures	23	6
	D. Resources required and programme for the management of asbestos	24–26	6
	E. Conclusion	27	7
IV.	United Nations Office at Nairobi	28	7
V.	Economic Commission for Africa headquarters	29–35	7
	A. Presence of asbestos	29–31	7
	B. Compliance with industry codes, regulations and standards	32	8
	C. Current measures	33	8
	D. Resources required and programme for the management of asbestos	34	8
	E. Conclusion	35	8
VI.	Economic Commission for Latin America and the Caribbean headquarters	36–41	8
	A. Presence of asbestos	36–37	8
	B. Compliance with industry codes, regulations and standards	38	8
	C. Current measures	39	8
	D. Resources required and programme for the management of asbestos	40	9
	E. Conclusion	41	9
VII.	Economic and Social Commission for Asia and the Pacific headquarters	42–49	9
	A. Presence of asbestos	42–45	9
	B. Compliance with industry codes, regulations and standards	46	9
	C. Current measures	47	10
	D. Resources required for the management of asbestos	48	10
	E. Conclusion	49	10

VIII. Economic and Social Commission for Western Asia headquarters 50 10

IX. Overall conclusions regarding the management of asbestos-containing materials at United Nations Headquarters, the United Nations Offices at Geneva, Vienna and Nairobi, and the headquarters of the regional commissions 51–57 10

Annex

Glossary 12

I. Introduction

1. By resolution 54/249, the Secretary-General was requested to submit to the General Assembly at its fifty-fourth session a detailed and comprehensive report addressing the asbestos problem at United Nations Headquarters buildings.

2. In his report on the review assessment and management of the asbestos problem at United Nations Headquarters (A/54/779), the Secretary-General provided a review of measures and procedures being followed in order to ensure that the presence of such materials has no negative effect on the health of delegates, staff members or other persons working in and visiting the buildings, including specific proposals to address the situation in the proposed programme budget for the biennium 2000-2001.

3. The report also contained general and historical information on asbestos, the use of asbestos-containing materials, studies conducted on the adverse health effects associated with exposure to asbestos, industry codes, regulations and standards and the handling of asbestos-containing materials.

4. The Advisory Committee on Administrative and Budgetary Questions (ACABQ), during its consideration of the report, met with representatives of the Secretary-General, who provided additional information. The Committee recommended in document A/54/7/Add.12, paragraph 8, that the General Assembly take note of the information for Headquarters and that similar information be provided for buildings at Geneva, Vienna, Nairobi and at the locations of the regional commissions.

5. The present report provides an assessment of the asbestos situation at those locations. The glossary of terms and general background information regarding the hazards of asbestos-containing materials contained in the annex to the above-mentioned report (A/54/779) remain applicable to the present report and are reproduced in the annex.

II. United Nations Office at Geneva

A. Presence of asbestos

6. Very limited amounts of asbestos-containing materials were used in the construction of the Palais des Nations at Geneva, as noted below.

1. Old buildings

7. In the old buildings constructed by the League of Nations between 1931 and 1938, asbestos-containing materials were used in the Assembly Hall and adjoining room XVI for acoustical and fireproofing purposes. Spray-on vermiculite and a mix of magnesium-iron/calcium silicates was used in 1938 and again in 1960 at:

(a) The four rounded corners of the Assembly Hall, decorated with very large mural paintings (approximately 11 metres high and 7 metres wide). These paintings were attached to concave perforated sheets on which a large amount of soft asbestos-containing material had been applied. Those mural paintings were removed in 1960 and were replaced by large wall hangings;

(b) Part of the ceiling (vaulted section) had been sprayed with vermiculite which contains asbestos material.

2. New building (E Wing)

8. In the new building, constructed between 1968 and 1973, part of the metal structure of the conference building was sprayed with a fireproofing material, vermiante, which contains small amounts of asbestos material. The metal framework is concealed behind a drop-down ceiling made of fibrous plaster.

3. Pavillions du Petit Saconnex

9. These prefabricated buildings were tested in 1997 and were found to have no asbestos-containing materials.

B. Compliance with industry codes, regulations and standards

10. The buildings at the United Nations Office at Geneva fully comply with all standards, codes and

regulations and guidelines of the host country, Switzerland, specialized laboratories and competent authorities, such as:

(a) Regulation No. 6503, edition 1.91 (July 1994), of the Commision fédérale de coordination pour la sécurite au travail;

(b) Institut universitaire romand de santé au travail, Lausanne;

(c) Société et laboratoire d'études, maintenance et d'expertises, Geneva.

11. Any operations for the monitoring, removal and disposal of asbestos-containing materials are performed in complete compliance with the above regulations and standards, including engaging of contractors to perform such work. All air quality monitoring, removal and disposal work is performed by certified contractors. The in-house staff supervises outside contractors and participates in maintenance and custodial activities during which employees may contact but not disturb asbestos-containing materials.

Threshold values

12. According to current official regulations in Switzerland, airborne fibres must be below a count of 700 fibres per cubic metre for safe and healthy occupancy. An airborne fibre count between 700 and 1,200 per cubic metre requires further purification and filtration and regular inspections. Recorded airborne fibre counts above 1,200 per cubic metre require additional technical and purification measures to bring the fibre count below the threshold values.

C. Current measures

13. *Assembly Hall.* During the complete renovation of the Assembly Hall during 1994-1995, full asbestos removal was carried out in the Hall and in the adjoining room, room XVI, because of the links between the Hall and room XVI through the air conditioning ducts.

14. *New building (E Wing).* Since 1995, measures have been taken to remove asbestos containing materials from the conference rooms and hallways (Spence hallways on the first, second and third floors) of this building. For example, prior to replacing light fixtures in the drop-down ceiling in room XVII, complete removal of asbestos-containing materials was carried out from the metal beams, which were sprayed with new fireproofing material that did not contain any asbestos.

15. A small amount of vermiante still remains in some beams in rooms XVIII, XIX and XX in inaccessible areas. This material in the concealed areas is fully encapsulated and hardened and cannot become airborne; hence, it poses no risk to the occupants of those spaces.

16. Air quality testing in the old and new buildings have confirmed a fibre count between 100 to 550 fibres per cubic metre, which is well below the safe threshold limit of 700 fibres per cubic metre.

D. Resources required for the management of asbestos

17. During 1995-2000, all asbestos-containing materials from the Assembly Hall and adjacent room in the old buildings and from various conference rooms and hallways of the new building (E Wing) were removed. There is still some remaining fireproofing asbestos-containing material, vermiante, in some concealed surfaces of the rooms XVIII, XIX and XX of the new building. But this material is in fully encapsulated condition and poses no risk to occupants. Removal of this material from concealed surfaces would require approximately $1 million and each of those rooms would need to be closed down for four to six months each. Removal of the material in concealed locations and in an encapsulated state is not recommended by the experts. Therefore, no additional resources are required for the management of asbestos at the United Nations Office at Geneva.

E. Conclusion

18. Asbestos-containing materials were used only in limited quantities in buildings for the United Nations Office at Geneva, as acoustical and fireproofing material. Almost all the asbestos-containing materials have been removed from the old and new buildings, except for small amounts of fireproofing material on the metal beams in rooms XVIII, XIX and XX of the new building, which is fully encapsulated and poses no risk to the occupants. Air quality tests have confirmed the fibre count well below the safe threshold limits. No additional funds or resources are required for the

management of the asbestos problem at the United Nations Office at Geneva.

III. United Nations Office at Vienna

A. Presence of asbestos

19. Asbestos-containing materials were widely used in the steel structure ceilings, walls, partitions and other areas of the United Nations Office at Vienna buildings as acoustic, fireproofing and insulation covering. Use of such materials was permitted in Austria up until 1979. Since all buildings were constructed prior to 1979, there were no restrictions governing the use of asbestos-containing materials during the design and construction phase. The asbestos used mostly is a mix of white asbestos (chrysotile — magnesium silicate hydrate), blue asbestos (crocidolite — sodium iron silicate) and green asbestos (anthrophylite and tremolite — magnesium-iron/calcium silicate).

B. Compliance with industry codes, regulations and standards

20. All buildings at the Vienna International Centre are owned by the Austrian Government and the Ministry of Foreign Affairs, and other government agencies have been primarily responsible for monitoring, removal and disposal of any asbestos-containing materials. Even though restrictions governing the use of asbestos in Austria were first introduced in 1979, the first general prohibition of the use of asbestos was legislated in 1990.

21. Two independent consulting companies, one Austrian and one British, have surveyed the buildings and have established threshold values for safe airborne levels of asbestos fibres consistent with other European countries. These values should be below a count of 700-fibres per cubic metre.

22. Any operations for the monitoring, removal and disposal of asbestos-containing materials are performed in accordance with the guidelines of the consultants engaged by the Austrian Government.

C. Current measures

23. Many years before 1990, the Buildings Management Service at the United Nations Office at Vienna started a programme of regular inspections and encapsulation of asbestos surfaces so as to prevent asbestos fibres becoming air borne. Periodic monitoring of air quality has confirmed the fibre count to be well below the safe threshold value in all buildings at the United Nations Office at Vienna. In cases where ceiling tiles need to be removed for cabling or other maintenance and renovation activities, there exists a potential for fibre counts to exceed the safe threshold values. Therefore, all such work is performed only after hours and during weekends, when all office work surfaces are properly covered and all workers use proper protective and respiratory equipment. Since 100 per cent fresh air is used and the inside air is not recirculated in the Vienna International Centre, any free fibres are exhausted to the outside. In certain offices and other areas where air is recirculated, indoor air quality tests are used to ensure that fibre counts are always below the safe threshold values. There are no known cases of asbestos-related diseases for the staff, delegates or visitors to the Centre.

D. Resources required and programme for the management of asbestos

24. Regular inspections and encapsulation efforts are ongoing. Any work to be performed above the ceilings is performed with proper protection and monitoring and only after hours and on weekends.

25. Initial efforts for the removal of asbestos were undertaken by the Office for Drug Control and Crime Prevention and the Comprehensive Nuclear-Test-Ban Treaty Organization in 1996, followed by a Buildings Management Service-initiated evaluation in 1997 of the asbestos situation. The resulting proposals for removal of asbestos were found to be too general to serve as the basis for a systematic plan for action.

26. In 1999, the government agency responsible for the Vienna International Centre initiated a comprehensive study of the asbestos situation that could be used as the basis to develop a master plan for the removal of asbestos in the Centre. The study undertook a comprehensive asbestos removal pilot project during fall and winter 1999. The pilot project was several times more expensive and lasted three

times longer than originally planned. A detailed report describing the results of the pilot project and lessons learned was released by the Ministry of Foreign Affairs on 26 April 1999. The study recommended that:

(a) Asbestos be removed from all floors, with three to five floors of office space being vacated at a time and cleared of all asbestos-containing materials. During abatement, all of the occupied areas should have zero asbestos fibre count;

(b) The report estimated that eight years of work would be required to remove all asbestos from office areas and 20 years of work to remove asbestos from other areas;

(c) The total cost of removal is estimated at 450 million Austrian schillings (approximately US$ 32 million). During such an extended period, other logistical and operating problems could surface that could further escalate costs;

(d) Meetings are taking place between the Vienna-based organizations and the host country to discuss alternative logistic solutions, such as the number of floors to be vacated simultaneously, relocation arrangements etc.;

(e) The Vienna-based organizations have submitted a position paper to the host country stating that the host country should cover all removal costs, including direct costs, such as labour, and indirect costs, such as relocation expenses. The host government negotiators have not yet accepted the position paper;

(f) Since the host country does not want to incur the expenses associated with staff relocations to office areas outside of the Vienna International Centre, in the latest proposal Austria's negotiators have suggested the establishment of a container-based swing space office area to house staff during the asbestos-removal project. Discussions are taking place about the suitability of the proposal itself, the technical realization of the proposal without impeding operations or causing significant indirect costs and the minimization of the total project duration.

E. Conclusion

27. Asbestos-containing materials were used extensively in the United Nations Office at Vienna as acoustical, fireproofing and insulating materials. All asbestos-containing surfaces are regularly inspected and maintained in an encapsulated state, whereby asbestos fibres cannot become airborne. Any maintenance or renovation work where asbestos could be disturbed is performed after hours and during weekends. All indoor air quality tests have revealed the fibre counts well below the safe threshold limits. A long-term master plan is under development, and associated processes and costs are under discussions between the United Nations and the Austrian Government.

IV. United Nations Office at Nairobi

28. The buildings at the United Nations Office at Nairobi complex, which were constructed between 1975 and 1994, do not contain any asbestos material since they were constructed when the use of such materials was already discouraged. Since there is no asbestos problem at this complex, no further information on this location is included in the present report.

V. Economic Commission for Africa headquarters

A. Presence of asbestos

29. Economic Commission for Africa (ECA) headquarters at Addis Ababa, which was constructed between 1961 and 1976, used ACM (rock wool), a material containing asbestos on a relatively small scale, on the following surfaces:

(a) Acoustic insulation over ceiling panels;

(b) Thermal insulation on pipes and ducts or electrical insulation over some terminals;

(c) Acoustic isolation between metal panels for partition walls.

30. To date, no tests have been performed to determine the type of asbestos-containing materials at ECA. However, a programme of bulk samples testing to determine the extent of the asbestos problem is being developed in coordination with United Nations Headquarters for use commencing in the year 2001 and thereafter.

31. The new conference facilities, pavilions and auxiliary buildings, which were constructed in 1996, do not contain any asbestos material.

B. Compliance with industry codes, regulations and standards

32. No regulations issued by the local authorities regarding asbestos monitoring, control, testing, removal and disposal were found. Therefore, guidelines for the above areas would be developed and used for ECA offices in coordination with United Nations Headquarters along the lines of codes, standards and guidelines used in the United States and Europe.

C. Current measures

33. Currently only regular visual inspections of areas known to have asbestos-containing materials are carried out and all asbestos-containing materials are maintained in an encapsulated state by the use of a gypsum/latex sealant. All buildings maintenance manuals have been modified to include weekly inspection of insulation on all pipes and ducts, ceiling and panels. Immediate encapsulation of any disturbed/damaged asbestos material is performed. For maintenance and renovation projects, special personal safety measures are followed to avoid any adverse health effects. Use of any asbestos-containing materials is prohibited. There have been no indoor air quality tests performed to date to determine indoor airborne fibre counts. However, a programme of regular indoor air quality testing with regard to fibre count is being developed in coordination with United Nations Headquarters for use commencing in the year 2001 and thereafter.

D. Resources required and programme for management of asbestos

34. To date, there has not been any need for removal and disposal of asbestos-containing materials and hence no resources have been requested. However, ECA will implement a monitoring, testing and engineering controls programme in the year 2001 in coordination with United Nations Headquarters that may lead to additional resources being required for management of the asbestos situation at ECA headquarters.

E. Conclusion

35. All asbestos-containing materials at ECA headquarters are maintained in an encapsulated condition and as a result no health or safety problem has been experienced to date. Additional tests and engineering controls will be developed and implemented in 2001 to ensure safety of the staff, delegates and visitors.

VI. Economic Commission for Latin America and the Caribbean headquarters

A. Presence of asbestos

36. The original infrastructure of the buildings at Economic Commission for Latin America and the Caribbean (ECLAC) headquarters, which were constructed between 1966 and 1992, used asbestos-containing materials on the following surfaces:

(a) Thermal insulation on water piping (which was completely replaced 15 years ago);

(b) Acoustic filler in the wall partitions.

37. No asbestos-containing materials were used in the building additions or alterations/improvements after 1992.

B. Compliance with industry codes, regulations and standards

38. ECLAC buildings comply with all applicable local codes, regulations and standards with regard to monitoring, removal and disposal of asbestos-containing materials. Such rules and regulations are identical to those used in the United States.

C. Current measures

39. All asbestos-containing insulation from water pipes was removed 15 years ago. Testing has confirmed the presence of asbestos. The following measures have

been implemented to protect the United Nations staff, delegates and visitors from exposure to asbestos fibres:

(a) For any alteration or improvement project, if an existing partitioned space is affected, the partitions with asbestos-containing materials are removed and replaced with partitions free of asbestos;

(b) During the 2000-2001 biennium, it is planned to replace all existing asbestos-containing partitions with partitions free of asbestos;

(c) At the completion of the above project, there will no longer be any asbestos-containing materials at ECLAC headquarters;

(d) To date, no adverse health effects or contamination from asbestos materials in the wall partitions have occurred. This is because any work related to replacement of existing partitions is done under controlled conditions.

D. Resources required and programme for the management of asbestos

40. Approximately $250,000 was budgeted in the 2000-2001 biennium for the replacement of all existing asbestos-containing wall partitions with new asbestos-free wall partitions. At the completion of this project, there will no longer be any asbestos-containing materials at ECLAC headquarters and hence no additional resources will be required.

E. Conclusion

41. ECLAC headquarters had asbestos materials present in the insulation on water pipes and as acoustic filler in wall partitions. Asbestos materials were removed from piping 15 years ago. All wall partitions containing asbestos are planned to be replaced during the 2000-2001 biennium. Thereafter, ECLAC buildings will be free of any asbestos materials. To date, no harmful health effects have been experienced since any partition replacement work is performed with proper protective engineering control measures.

VII. Economic and Social Commission for Asia and the Pacific headquarters

A. Presence of asbestos

42. The ESCAP complex consists of three structures, namely:

(a) A United Nations conference centre;

(b) The secretariat building;

(c) The service building.

43. The United Nations conference centre, constructed between 1989 and 1993, did not use any asbestos-containing materials for the buildings, infrastructure and fixtures.

44. The secretariat and service buildings are structures totalling 50,159 square metres (m^2) in floor area, and were constructed between 1973 and 1975. Detailed review of those structures has confirmed that all areas of those buildings are free of asbestos-containing materials except for approximately 35,000 m^2 of vinyl composition floor tiles that used white asbestos, chrysotile (magnesium silicate hydrate) as a binding material.

45. Any asbestos-binding material used for vinyl floor tiles is considered non-friable and fully encapsulated, and does not become airborne during normal use or cleaning operations. Therefore, such floor tiles do not pose any health and safety risks to the staff, delegates and visitors to the complex.

B. Compliance with industry codes, regulations and standards

46. ESCAP facilities fully comply with local and international standards with regard to asbestos-containing materials. Since the asbestos used as a binding material in vinyl tiles is considered fully encapsulated and non-friable, the rules and regulations do not require removal of such tiles except when they become damaged or a renovation of the affected area is undertaken.

C. Current measures

47. ESCAP has been systematically replacing the asbestos-containing vinyl floor tiles since 1991 with a similar product that contains no asbestos. The replacement is done in conjunction with other alterations, improvements or maintenance work. To date, there has been no incidence of asbestos fibres becoming airborne since any tile replacement work is performed under a proper protective and controlled environment.

D. Resources required for the management of asbestos

48. ESCAP plans to replace all remaining asbestos-containing vinyl tiles in a phased manner over a six-year period, commencing in the 2002-2003 biennium, even though they pose no health risk to the building occupants. The total cost of replacement of the above tiles is estimated at $400,000, which would be spread over the six years. ESCAP will request appropriate funding for this project over the period 2002-2007. After completion of the above vinyl floor tiles replacement project, ESCAP facilities will be free of asbestos-containing materials.

E. Conclusion

49. The ESCAP conference centre has no asbestos-containing materials in its buildings, infrastructure or equipment. The ESCAP secretariat and service buildings only contain asbestos as a binding material over 35,000 m^2 of floor that is fully encapsulated, non-friable and poses no health risk to their occupants. It is planned to replace all asbestos-containing floor tiles over a six-year period, commencing in 2002.

VIII. Economic and Social Commission for Western Asia headquarters

50. The Economic and Social Commission for Western Asia (ESCWA) headquarters complex, including facilities for United Nations agencies and other international organizations, which is leased at no charge, was constructed in 1997, as a "smart" building. The internal and external finishings of the building do not contain any asbestos material since it was constructed when use of such materials was already discouraged. Lined vinyl partition walls contain rock wool insulation only, which does not contain any asbestos material. Since there is no asbestos problem in this complex, no further information on this location is included in the present report.

IX. Overall conclusions regarding the management of asbestos-containing materials at United Nations Headquarters, the United Nations Offices at Geneva, Vienna and Nairobi, and the headquarters of the regional commissions

51. The United Nations Office at Nairobi and ESCWA headquarters in Beirut have no asbestos-containing materials in their buildings, infrastructure elements and equipment, and hence no further action is required at those locations.

52. Asbestos was used to different degrees in buildings at United Nations Offices at Geneva and Vienna, and at ECA headquarters in Addis Ababa, ECLAC headquarters in Santiago and ESCAP headquarters in Bangkok.

53. For all the facilities noted in the above paragraph, applicable regulations of the host country are followed with regard to monitoring, engineering controls, removal and disposal of asbestos-containing materials.

54. The emphasis at all these facilities has been to conduct regular inspections, testing and indoor air quality monitoring to ensure that all asbestos-containing materials remain encapsulated and do not become friable, and that the fibre count in the air remains well below industry-established safe threshold limits. Adequate engineering control measures are in place to make sure that the safety and health of the staff, delegates and visitors are not adversely affected by the presence of asbestos-containing materials. In addition, any asbestos-containing material that can become friable by maintenance, alterations, improvement or other activities is either removed or encapsulated by following established safety, monitoring and control measures.

55. There have been no known or documented cases of asbestos contamination or known adverse health effects from the release of asbestos fibres.

56. All facilities have developed or are developing a programme of phased removal of asbestos-containing materials over a multi-year period, consistent with safety, operations, space availability and budgetary considerations.

57. The programme of engineering controls and resources required for the abatement of asbestos-containing materials for United Nations Headquarters is detailed in document A/54/779, while the programme for the overseas properties is summarized herein.

Annex

Glossary

Asbestos. Generic name for a class of naturally occurring magnesium-silicate minerals that found wide acceptance as a choice material for high durability, insulating, fire-resistance and sound-proofing properties.

White asbestos. Chrysotile (magnesium silicate hydrate); 95 per cent of all asbestos used in the United States.

Brown asbestos. Amosite (ferrous magnesium silicate); used in places in the United States and in United Nations Headquarters buildings for its high heat resistance.

Blue asbestos. Crocidolite (sodium iron silicate); used mostly in Europe.

Green asbestos. Anthophyllite and tremolite (magnesium-iron/calcium silicate); used mostly in Europe.

Asbestos-containing materials. Any material containing more than 1 per cent of asbestos.

Asbestos fibre. A particle form of asbestos 5 micrometres long or longer, with the length of the particle being three or more times that of the diameter.

Critical barrier. One or more layers of plastic sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.

Employee notification of monitoring results. Notification of results to affected employees is required within 15 days of receipt of results.

Encapsulated, or non-friable asbestos. The state of asbestos-containing materials when they are properly sealed, wrapped and contained so that they do not crumble by hand pressure and do not pose any risk of releasing asbestos fibres into the air during the normal course of daily activities or during routine servicing, custodial and cleaning activities. Encapsulated materials do not pose a health risk unless disturbed by cutting, sanding or handling processes.

Engineering controls and work practices. Isolation, ventilation, cleaning and other measures to ensure that airborne asbestos fibres always remain within the permissible exposure limits or excursion limits before, during or after any asbestos handling, disposal, abatement or cleaning activities.

Excursion limit. An airborne concentration of asbestos of 1.0 fibre per cubic centimetre of air (1 f/cc), as averaged over a sampling period of thirty (30) minutes.

Exposure monitoring. General determination of employee exposure shall be made from breathing zone air samples that are representative of a 30-minute short-term or 8-hour time-weighted average.

Friable asbestos. Asbestos that can be crumbled with hand pressure and can therefore readily release fibres into the air, if disturbed. The potential for an asbestos-containing material to release harmful, breathable fibres into the air depends on its existing degree of friability or the friability created by any cutting or handling process.

High-efficiency particulate air filter. Filters capable of trapping 99.97 percent of particles 0.3 micrometres in diameter.

Permissible exposure limits. Airborne concentration of asbestos fibres in excess of 0.1 fibre per cubic centimetre of air as an 8-hour time-weighted average.

Presumed asbestos-containing materials. Thermal insulation or surfacing material found in buildings constructed before 1980. Unless otherwise proven by tests, such insulation or surfacing materials are presumed to contain asbestos. Buildings constructed in the United States after 1980 did not use asbestos-containing materials.

Regulated area. An area where abatement of asbestos-containing materials is planned.

Surfacing asbestos-containing materials. Surfacing materials that are sprayed on, trowelled on or otherwise applied to walls, ceilings or other surfaces for fireproofing, acoustic treatment and other purposes and which contain more than 1 per cent asbestos.

Thermal system insulation asbestos-containing materials. Thermal system insulation materials that contain more than 1 per cent asbestos and are applied to pipes, fittings, tanks, ducts or other components to prevent heat loss or gain.